Allergy Abstracts

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Announcement

AT THE suggestion of the Committee on Publications of the American Academy of Allergy, THE JOURNAL OF ALLERGY has generously offered to undertake the publication of ALLERGY ABSTRACTS. ALLERGY ABSTRACTS welcomes this opportunity of reaching a larger and more diversified group of readers than it has previously enjoyed.

ALLERGY ABSTRACTS has been published since 1936, by members of the Allergy Division of the Jewish Hospital of Brooklyn. The Editorial Board is comprised of former residents of this department who contribute their services.

ALLERGY ABSTRACTS selects and abstracts those articles in the literature which may be of clinical or theoretical interest to workers in the field of allergy. Each abstract represents a summary of the author's findings and views, and its inclusion in ALLERGY ABSTRACTS does not imply approval of its contents by the editor.

—The Editors.

Asthma and Hay Fever

Bronchiolar Lymphoid Hyperplasia as a Cause of Emphysema. Report of a Case. Brandes, W. W., Cooke, R. A., and Osborne, M.P.: Arch. Path. **36**: 465, 1943.

An unusual case is reported in which emphysema was associated with bronchiolar stenosis caused by focal hyperplasia of lymphoid tissue. The patient, a 31-year-old white male, gave a history of recurrent attacks of dyspnea without fever for the three preceding winters. During the previous year, the dyspnea had been continuous. The diagnosis of bronchial asthma had been considered, and the patient was studied extensively from the standpoint of allergy and of other cardiorespiratory diseases. Allergic investigations yielded no positive findings. Prolonged treatment with an autogenous vaccine was of little aid. Smears from the bronchial tree, obtained during bronchoscopic examination, failed to show eosinophiles. The drugs commonly employed in bronchial asthma produced inconstant results. The patient's condition became progressively worse, until death occurred in a state of asphyxia. The pathologic findings at post-mortem examination were emphysema, aberrant growth of lymphoid follicles, sclerosis of small branches of the pulmonary arteries and arterioles, and cor pulmonale.

H.

Electroencephalographic Studies in Asthma With Some Personality Correlates. Rubin, S., and Moses, L.: Psychosom. Med. **6**: 31, 1944.

Previous studies have shown that there is a definite personality constellation in bronchial asthma and that there is an apparent relation between "alpha index" and personality. In the present study, electroencephalograms and personality data were gathered on forty-five patients who had had asthma for from two to forty-three years. Personality data gathered in interviews with the patient were grouped under sibling relationship, father and mother attitude in the family, outward aggressiveness or calmness of patient, vocational success, oral activity, insecurity feelings, early independence of patient, type of mate desire, and emotional precipitants.

The electroencephalographic data obtained showed three times as many dominant alpha records in the asthmatic group as in a normal group, indicating that there is a definite relationship between bronchial asthma and a dominant alpha record. The personality data pointed to a single, fairly definite personality constellation. These patients seemed to comprise a fundamentally passive, dependent group of individuals who were the children of an overprotective, dominating mother. They have not cared for, striven for, or gained any marked degree of independence in life and continue to seek care and protection from the environment.

A.

Occupational Allergy of the Respiratory Tract. Derbes, V. J., and Winsor, T.: Ann. Int. Med. **20**: 255, 1944.

The literature on occupational bronchial asthma is reviewed. The medicolegal considerations involved in various states are discussed. Attention is drawn to the possible etiologic significance of occupational allergens in asthma after the age of 40, especially in cases of so-called intrinsic asthma. Control of nonoccupational allergens is also important in the treatment and management of cases with occupational asthma.

H.

Effect of Ephedrine Sulfate on the Red Blood Cell Count in Humans. Harris, A. M., and David, J. E.: Proc. Soc. Exper. Biol. & Med. **54**: 195, 1943.

The effect of ephedrine sulfate on the red blood cell count was investigated in seven normal subjects. Red cell and white cell counts and hemoglobin determinations were made at frequent intervals before and during the period of administration of the drug. Each subject received 50 mg. of ephedrine sulfate daily by mouth for three to four weeks. Within three weeks, an average rise of half a million erythro-

cytes and a corresponding increase in hemoglobulin resulted. No appreciable change in the white cell count was noted. Usually after four weeks of therapy, the red counts returned to normal even when administration of the ephedrine was continued. The ephedrine probably produces erythropoiesis by causing vasoconstriction which curtails the blood and oxygen supply to the bone marrow. Since the elevation of the red count is only temporary, the prolonged administration of ephedrine sulfate to human beings is not considered to be deleterious.

A.

History-Taking in Allergy; an Outline For, and a Comparison of, Results From 200 Histories and Skin Tests. Swineford, O., Jr., and Weaver, W. M.: Ann. Int. Med. **20**: 293, 1944.

A comparison of the literature on history-taking and on cutaneous testing revealed a disproportionate emphasis on the latter. The information obtained from the history and that obtained by cutaneous testing is summarized, tabulated, and compared in 200 patients. Skin-testing is considered supplementary to the history in identifying offending allergens. An outline for history-taking in allergy is presented.

H.

Syringe Control in Passive Transfer Reactions. Simon, F.: Ann. Allergy **2**: 15, 1944.

In addition to the usual transfer and specificity controls in indirect testing, a further precaution is recommended, which is referred to as the "syringe control." After the usual cleansing and sterilization, the needles and syringes are partially filled with extracting fluid. After this is well distributed in the barrel by working the plunger, all but about 0.1 c.c. is expelled. This is used for testing sensitized and non-sensitized skin sites. The reactions at both sites should be equal and negative before the syringe is considered acceptable for use in passive transfer work.

F.

Dermatology

Cutaneous Autosensitization; Role of Staphylococci in Chronic Eczema of the Hands. Hopkins, H. H., and Burky, E. L.: Arch. Dermat. & Syph. **49**: 124, 1944.

The term "keratid" is suggested to denote a type of intractable eczema of the hands which the authors believe is due to local hypersensitivity to the patient's own keratin. The autosensitization may be caused by the release of staphylococcus toxin, associated with trauma at the site of the lesions. The toxin probably combines with epidermal keratin, an organ-specific substance, and a local sensitization phe-

nomenon in the form of dermatitis results. Patients with this type of lesion should show a skin sensitivity to staphylococcus toxin and also to keratin.

More than 50 patients with intractable eczema of unknown origin, on hands or other parts of the body, were studied with the above concept of autosensitization in mind. These patients were treated with staphylococcus toxin. *Staphylococcus aureus* was isolated from the skin lesions in forty patients, and *Staphylococcus albus* was found in two patients. In some cases, a hemolytic streptococcus was also found. All the patients were tested with Burky's staphylococcus toxin and all reacted positively. Six of 7 patients tested with human dander extract showed positive reactions. Of the patients with intractable eczema of the hands, who were treated twice weekly with intracutaneous injections of staphylococcus toxin for periods varying from a few weeks to a year, a high percentage (50 per cent) were cured. It was concluded from these studies that certain intractable eczemas of the hands are probably due to the development of autosensitization to keratin as a result of the synergistic action of staphylococcus toxin, which is liberated at the site of the lesions. Recently, it has been shown that autogenous sensitization to some component of skin can be induced experimentally in animals by taking advantage of the synergistic action of staphylococcus toxin.

A.

Dermatologic Significance of Tissue Eosinophilia. Burkhart, R. J., and Montgomery, H.: Arch. Dermat. & Syph. **49**: 19, 1944.

The relationship between tissue and blood eosinophilia was investigated in some dermatologic conditions characterized by tissue eosinophilia. The significance of the number of lobes in the nuclei of eosinophiles was also studied. It seems likely that eosinophiles originate in the bone marrow and pass into the circulation as mature cells. In addition, they may be formed locally in the tissues. The function of eosinophiles is a subject of controversy, although there seems to be definite evidence that the cell possesses phagocytic power which may be directly proportional to the number of lobes in the nucleus.

The study was made on a large series of patients suffering from localized neurodermatitis (Lichen Vidal), exudative dermatitis, atopic dermatitis (disseminate neurodermatitis), dermatitis herpetiformis, and pemphigus vegetans. The histories were reviewed particularly in relation to the blood counts and a personal or family history of allergy. Histologic sections were studied in many cases. Biopsies were performed and differential cell counts were done on the tissue infiltrates. The results indicated that, in localized neurodermatitis, the percentage of eosinophiles in the blood is rarely high and eosinophiles are scarcely found in the tissue infiltrate. In exudative neurodermatitis and disseminate neurodermatitis (atopic dermatitis), an increase in the per-

centage of eosinophiles in the blood was noted. The tissue infiltrate in these cases also showed moderate amounts of eosinophiles. In exudative dermatitis, most of the eosinophiles possessed bilobed nuclei. This was also the predominant type of eosinophile in the tissue infiltrates in localized neurodermatitis, atopic dermatitis, and dermatitis herpetiformis. In dermatitis herpetiformis and pemphigus vegetans, eosinophiles were found in the cutis and in the abscesses and bullae in the epidermis. In individuals having a high blood eosinophilia the tissue eosinophilia which follows an injection of foreign protein was usually greater than in persons with a low percentage of eosinophiles in the blood.

A.

Lacquer Dermatitis. Hailey, H.: South. Med. J. **37**: 37, 1944.

Eleven cases of severe lacquer dermatitis were observed in women following the application of hair dressings containing lacquer. The dermatitis usually developed after two or more applications of the offending material. The lesions consisted of wheals, papules, papulovesicles, amber crusts, and edema. The areas involved were the head, face, eyes, ears, and neck. In some cases a generalized eruption occurred. Patch tests with the lacquer hair dressing were positive, and, in one case, a generalized eruption followed a strongly positive patch test reaction. Symptomatic treatment, following immediate removal of the offending substance, brought relief.

A.

Sulfonamide Dermatitis. Sensitization From Local Application. Tate, B. C., and Klorfaju, I.: Lancet **1**: 30, 1944.

Fifty-five of 2,280 patients who were admitted to the dermatologic division of a military hospital during a period of six months were cases of sulfonamide dermatitis produced by local application of the drug. Four of these cases also manifested symptoms of photosensitivity. All the cutaneous lesions were of an eczematous nature. The interval between the onset of sulfonamide application and the onset of the dermatitis was studied carefully in thirty cases. In eleven, the interval was from four to seven days; in ten, from seven to fourteen days; and in nine, more than fourteen days. No noticeable constitutional predisposition to sensitization was observed. Positive patch test reactions were obtained which were stronger after slight scarification of the skin. In some cases, the positive patch test was limited to the dermatitis area. The sensitivity persisted as long as eighteen months in some patients. The use of sulfa drugs in topical therapy is unwarranted, unless life is endangered or unless the results of healing would otherwise lead to a deformity.

H.

Sensitivity to Topical Application of Sulfathiazole Ointment. Darke, R. A.: J. A. M. A. **124**: 403, 1944.

Two hundred and eighty-five patients were treated topically with 5 per cent sulfathiazole ointment consisting of anhydrous wool fat, water, white petrolatum, and sodium sulfathiazole. The majority of the cases were under treatment for minor surgical conditions. Sensitivity to the sulfathiazole ointment occurred in twelve cases (5.5 per cent). The types of reaction dermatitis varied. Epidermolysis usually occurred in the cases with a chronic type of reaction. The interval between the beginning of treatment and the onset of the reaction varied from one day to five months. Positive patch tests were obtained in eight of the twelve patients. The dermatitis cleared in each case with the removal of the sulfathiazole contact. The dermatitis seemed to retard the healing of the wound. The indiscriminate use of sulfa preparations in minor conditions is discouraged.

H.

Practical Considerations of Dermatophytoses, as Seen by the Allergist. Schonwald, P.: Ann. Allergy **2**: 10, 1944.

Dermatophytoses with allergic reactions (ids) occur frequently among allergic individuals. The author studied 100 consecutive skin cases in which mycelia and spores of trichophyton were isolated from the lesions. In this series, 92 of the cases were allergic and gave definite skin reactions to pollens, molds, foods, or dust. Pruritus and perennial allergic rhinitis may be related to distant dermatomycosis and may be cured by hyposensitization with trichophyton extract. The most frequently encountered location of the skin disorders in this series was on the hands (25) and face (15). The most important feature in the treatment is hyposensitization with a mixed trichophytin. Irradiation with the cold quartz lamp and application of 10 per cent sodium thiosulfate may be of value. In addition to the above, consideration should be given to any other allergies which may be present. Aminophylline was used successfully to alleviate itching and pain. X-ray therapy is discouraged. Many outbreaks of dermatophytoses were found to be due to the cleaning of vegetables and working in gardens. Rubber gloves should not be used since they tend to cause perspiration and moisture which favor the growth of the fungi.

F.

Cashew Nut Oil Dermatitis. Lockey, S.: Ann. Allergy **2**: 22, 1944.

An outbreak of contact dermatitis, which occurred among men handling a varnish containing cashew nut oil, was found to be due to faulty treatment of the oil in the manufacturing process. Positive patch tests were obtained with this varnish and with cashew nut oil, but not with properly prepared varnish. The possibility that the pH

of the varnish may be of some etiologic importance was suggested by the fact that varnish samples with pH of 5 yielded many positive skin reactions, whereas those with a pH of 7 and 8 produced little or no reactions. Intramuscular injections with cashew nut oil extract accelerated the "hardening" and "desensitization" of sensitive individuals who worked with cashew nut oil. A second outbreak occurred in the same plant about one year later. The causative factor in this instance was the solvent "salvasal," which, on excessive contact with the skin, produced symptoms of dermatitis.

F.

Dermatitis Caused by Various Representatives of the Anacardiaceae in Tropical Countries. Merrill, E. D.: J. A. M. A. **124**: 222, 1944.

In most parts of the Old World tropics, plant species occur that, on contact, cause a distinct and often severe dermatitis corresponding to Rhus dermatitis in the United States. The various species belong in the same family, the Anacardiaceae, and the active principle is the same in all cases. The resinous sap of these plants possesses the dermatitis-producing properties. Various species of the mango tree, producing the familiar mango dermatitis, also belong in this family.

H.

Torantil (Histaminase) in Urticaria Following Serum Administration. Toomey, J. A., Kriete, F. M., and Epstein, H. C.: J. Pediat. **24**: 290, 1944.

Well-controlled clinical experiments indicate that histaminase neither prevents nor ameliorates the urticaria of serum sickness.

H.

Pediatrics

Immunity to Tetanus Induced by a Third Dose of Toxoid Three Years After Basic Immunization, Based on a Study of Thirty-Eight Allergic Children. Peshkin, M. M.: Am. J. Dis. Child. **67**: 22, 1944.

Thirty-eight allergic children who had been immunized against tetanus three years previously with two doses of 0.5 c.c. of combined alum-precipitated diphtheria and tetanus toxoids were given a "booster" injection of 0.5 c.c. of alum-precipitated toxoid. Fifteen received combined alum-precipitated diphtheria and tetanus toxoids, and twenty-three received only alum-precipitated tetanus toxoid. The antitoxin levels in the blood were measured at various intervals after the second and third doses. Within one month after the injection of the third dose of tetanus toxoid, given alone or in combination, all patients showed an adequate tetanus antitoxin titer. In most cases, the titer reached its maximum seven days after the "booster" dose and was higher and lasted longer than the titers which followed the original

immunization series or "booster" doses given from three months to two years after the initial series.

Thirty-three per cent of the subjects who received the "booster" dose of combined diphtheria and tetanus toxoids had febrile reactions which lasted twenty-four hours. The incidence of febrile reactions was greater in this group than among those children who received "booster" injections following intervals which were shorter than three years. None of the children who received "booster" doses of the tetanus toxoid alone experienced febrile reactions. One child who received the combined toxoids developed a general allergic reaction which lasted two days and consisted of an elevation in temperature, headache, and severe hay fever symptoms. Scratch tests, performed before and after the third dose of toxoid with undiluted alum-precipitated tetanus toxoid and the combined toxoids, were negative in all cases. It was concluded that the systemic reactions observed were caused by an increased sensitivity to the protein of the diphtheria bacillus and not to the proteose contained in the toxoid preparations. It was suggested that alum-precipitated tetanus toxoid alone be employed when a "booster" dose is administered to children two or more years after basic immunization with two doses of the combined toxoids.

A.

Whooping Cough: Skin Tests. Silverhorne, N., Fraser, T., and Brown, A.: Canad. M. A. J. **50**: 129, 1944.

Skin tests with pertussis toxin were performed on 120 children and nine adults. About 0.1 c.c. of toxin was injected intracutaneously and readings were made after sixteen to twenty-four hours. Adequate controls were employed. The results of the skin tests did not prove to be reliable in differentiating between children who had had whooping cough and those who were susceptible. All nine adults tested showed positive reactions, although six had received injections of whooping cough vaccine and six gave a past history of whooping cough. Three of four children who were tested before and after a series of pertussis vaccine inoculations showed positive reactions which remained unchanged after the immunization. It was concluded that the pertussis skin test is not a reliable index of susceptibility.

A.

Otorhinology and Ophthalmolcgy

Hypersensitiveness of the Mucous Membranes. III. Slit Lamp Studies of the Conjunctival Reactions Induced in Normal and in Atopic Persons With Histamine, Ethyl Morphine and Atopens. Feldman, L. A., and Sherman, H.: Arch. Ophth. **29**: 989, 1943.

Because of the accessibility of the ophthalmic mucosa and its visible blood supply, it was possible for the authors to study the vascular reactions by means of the slit lamp microscope. Comparisons were

made of the reactions which resulted from instillations of antigenic and nonspecific agents into the conjunctival sacs of normal and atopic persons. The specific excitant employed was ragweed pollen; the nonspecific excitants were ethylmorphine hydrochloride (dionin) and histamine phosphate. Sixty-nine subjects were studied.

The histamine and allergic reactions could not be differentiated from each other by slit lamp observations, but were distinguishable from ethylmorphine reactions. Vascular dilatation resulting from the instillation of histamine and allergens was marked and involved the deep large vessels, the superficial fine vessels, the superficial large vessels, and the deep fine vessels, in that order. After the use of ethylmorphine, the dilatation first involved the deep network to a marked degree and then the superficial vessels to a slight extent. The edema was always most pronounced in the ethylmorphine reactions. A solution of epinephrine hydrochloride 1:1,000 produced contraction of vessels with equal effectiveness in all types of reactions. Itching and injection of pericorneal sectors were occasionally present in the pollen reactions.

No evidence was obtained to indicate that muscular spasm played any part in the allergic vascular reaction of the sensitive conjunctiva. The picture was entirely one of vasodilatation.

Authors' Abstract.

A Comparison of the Ocular Reactions of Pigmented and Albino Rabbits to Normal Horse Serum. Schlaegel, T. F.: Am. J. Ophth. **27**: 137, 1944.

Pigmented and albino rabbits were injected intraocularly on the right side with normal horse serum. After periods varying from one to fourteen days, the animals were injected intravenously with normal horse serum. The animals were then sacrificed, and the eyes were enucleated and examined grossly and microscopically. The findings in the pigmented and albino rabbits were compared in an effort to find additional evidence to support the pigment-allergy theory of sympathetic ophthalmia. On the day after intraocular injection, the right eye showed only a slight reaction which could be attributed to the trauma of the injection. Animals, injected intravenously with horse serum twenty-four hours after intraocular injection, failed to show any significant gross changes in the eyes. When the intravenous injection followed the intraocular injection by seven days, one-third of the animals showed more than minimal reactions in the treated eye. When the interval was fourteen days, more than half of the animals showed reactions in the injected eyes. Larger ocular reactions were observed in the albino rabbits than in the pigmented rabbits. Rabbits failed to respond grossly to the intravenous injection of the homologous

antigen until the fifth day. A high percentage of rabbits succumbed to anaphylactic shock when injected intravenously fourteen days after intraocular sensitization. The untreated left eyes failed to show any gross evidence of reaction.

The histopathologic picture in the injected eyes was that of a severe reaction, closely resembling the pathologic findings in sympathetic ophthalmia. In the noninjected eyes, slight uveal infiltration was observed in approximately 40 per cent of the cases. The eye reactions occurring in pigmented and albino rabbits were similar. The degree of cellular infiltration of the eyes was less in this experiment than in a previous one in which rabbits were first sensitized by intracutaneous injections of horse serum and then were injected intraocularly. Regardless of the results obtained in these experiments, the author still is of the opinion that the pigment-allergy theory of sympathetic ophthalmia is sound.

C.

Miscellaneous Allergies

An Intradermal Test for the Recognition of Hypersensitivity to the Sulfonamide Drugs. Leftwich, W. B., Bull. Johns Hopkins Hosp. **74**: 26, 1944.

Sera from patients receiving sulfonamide therapy from one to fifteen days were used for cutaneous testing for hypersensitivity to these drugs. About 0.05 c.c. of serum was injected intracutaneously on the flexor surface of the arm. The control serum produced an initial wheal of 6 to 7 mm. in diameter, which increased to from 1 to 2 cm., with an erythema up to 20 mm. A positive reaction consisted of an initial wheal similar to that of the control wheal, which increased immediately to from 12 to 18 mm., with pseudopod formation. The accompanying erythema measured 30 to 40 mm. The reaction reached its maximum within fifteen minutes. Delayed reactions were not observed. Tests were made on thirty patients, of whom eighteen were clinically sensitive only to sulfathiazole, three only to sulfanilamide, two only to sulfadiazine, and four only to sulfamerazine. A positive cutaneous reaction was reported in twenty-eight (90 per cent). The testing serum was found to be highly specific. Freezing and preservation of the serum in the frozen state for two months did not affect its reaction-producing properties. Heating at 60° C. for three minutes destroyed these properties. Sera obtained from patients receiving the drug for less than five days did not produce a positive reaction. The drug level of the serum did not appear to have any effect on its reaction-producing properties. The cutaneous reaction could be elicited as soon as signs and symptoms of the sensitivity appeared and were obtained in two patients, one and five years after the occurrence of the dermatitis. The tendency of normal, control human serum which

has been aged in the ice box to produce a marked reaction is noted. The author suggests that the sensitizing antigen may be a sulfonamide-plasma-protein combination, the sulfonamide being a hapten.

H.

The Influence of Neuro-Hormonal Regulations on Anaphylaxis and Allergy. Harkavy, J.: J. Mt. Sinai Hosp. **10**: 565, 1944.

Anaphylaxis may be inhibited in experimental animals by removal of the thyroid, the parathyroids, the thymus, and the testes. In thyroidectomized animals, however, large doses of antigen can produce shock. Anaphylaxis can be enhanced as a result of inducing experimental hyperthyroidism through the administration of thyroxin or by ovariectomy, adrenalectomy, or hypophysectomy; also, by injection of pancreatic substance and insulin. Despite the evidence that the endocrine glands influence the anaphylactic and allergic states, the underlying mechanism in these conditions is fundamentally cellular. In human beings, thyroidectomy, parathyroidectomy, or ablation of the thymus do not appear to influence the clinical manifestations of allergy. Cases are cited to illustrate the occurrence of allergic symptoms in patients with hypothyroidism, hyperthyroidism, and hyperparathyroidism. Immunization could be accomplished in allergic patients despite the presence of various types of endocrine disturbances.

In many instances, endocrinal influences seem to account for certain allergic manifestations in individuals who show no evidence of an allergic predisposition. Such symptoms may consist of angioneurotic edema, urticaria, vasomotor rhinitis, or asthma, and may be associated with puberty, pregnancy, menstruation, or menopause. Skin tests in these patients are usually negative. Estrogenic studies may indicate an absence of estrogens in the urine and substitution therapy may prove beneficial in some cases but not in others. The possibility that hormones influence the cellular response by increasing or lowering the threshold of the cellular reaction may explain the occurrence or absence of allergic symptoms during certain endocrinal phases. However, the initiation of the allergic disturbance is not fundamentally due to the endocrine glands. Many symptoms which may appear to be allergic may not be immunologic but may be caused by changes in cellular metabolism resulting from disturbances of the autonomic nervous system which, in turn, may be brought about by endocrine disturbances. Cellular reactions, resembling allergic responses such as urticaria, angioneurotic edema, or wheezing respirations, may be nonimmunologic in origin and can be induced in man or animals by the injection of histamine, pilocarpine, or acetylcholine. The mechanism of physical urticaria appears to be caused by liberation of acetylcholine or acetylcholine-like substances from the peripheral nerves. This, in turn, leads to the release of H-substance from the skin, which results in urticaria. These findings suggest that H-substance may be

released not only by immunologic processes, but also by a nervous mechanism. It is concluded from these studies that, although neurohormonal regulations influence the occurrence of anaphylaxis and allergy, these conditions are fundamentally cellular reactions which are not initiated by the endocrine glandular system or the autonomic nervous system.

A.

The Art of Interpreting the Pulse-Diet Record in Familial Nonreaginic Food Allergy. Coca, A. F.: Ann. Allergy **2**: 1, 1944.

The specific treatment of familial nonreaginic food allergy is based on the principle that the ingestion or inhalation of an allergen, in this type of sensitivity, regularly causes acceleration of the pulse rate. There are, however, several factors which make the interpretations of the pulse-diet records difficult. These factors are the "recurrent" reaction, the "latent" period, the "delayed" reaction, the emergence of sensitivity to minor allergens, and the depression of the reactivity of the shock tissues by allergic insults. To diminish the possibility of erroneously implicating a food, the author has changed the dietary regime which he formerly advocated and now allows only one food at each of the five "meals" of the first day and possibly the second. Three case records of patients with nonreaginic food allergies are presented to illustrate the obstacles encountered in determining the causative allergens. By proper evaluation of all the factors concerned, the author was able to detect the offending foods in each case. The necessity for identifying nonreaginic inhalant allergens, such as house dust and tobacco, is stressed.

F.

Allergy to Liver Extract. Engelhardt, H. T., and Derbes, V. J.: South. Med. J. **37**: 31, 1944.

Three distinct types of reactions may follow the parenteral administration of liver extract. Illustrative cases are cited. Erythematous reactions frequently occur at the site of the early injections and usually cease to appear as therapy progresses. These are not allergic in nature but are probably caused by irritating substances in the liver preparation. The second type of reaction is a histamine-like reaction which may occur any time during the course of therapy. The symptoms, consisting of nausea, vomiting, and a drop in blood pressure, are probably caused by vasodilator substances in the liver extract. Subsequent injections may not affect the patient in the same manner. The third type of reaction is the allergic one, which may be local or generalized. Localized reactions usually occur after one or more injections and may consist of redness, heat, edema, and pain. The reactions after subsequent injections usually become progressively worse. Generalized allergic reactions may consist of dyspnea, collapse, and loss of consciousness. In the authors' case, the hypersensitivity to

liver extract could be transferred passively. In cases in which the reactions are due to impurities in the liver preparation, the substitution of one brand for another may solve the problem. On the other hand, individuals manifesting true sensitivity to liver are rarely benefited by attempts at desensitization or substitution, since the sensitivity is organ-specific rather than species-specific. However, such patients may tolerate liver orally without ill effects.

A.

Sensitivity to Thiouracil. Garrilove, J. L., and Kert, M. J.: J. A. M. A. **124**: 504, 1944.

Three of nine cases of hyperthyroidism, treated with thiouracil, exhibited manifestations of drug sensitivity. One patient developed fever, generalized lymphadenitis, and a diffuse erythematous maculopapular dermatitis. The second patient exhibited only fever and dermatitis, and the third developed a moderate leucopenia. The reactions subsided on withdrawal of the drug and could be precipitated by a small dose.

H.

Paroxysmal Abdominal Pain. Moore, M. T.: J. A. M. A. **124**: 561, 1944.

A man, aged 32 years, had irregular attacks of paroxysmal abdominal pain since the age of nine months. Years of study yielded essentially negative results except for a few doubtful reactions to certain allergens. The ingestion of some foods, especially watermelon, resulted in urticaria. In the differential diagnosis, gastrointestinal allergy, abdominal migraine, and a conditioned functional disorder of psychogenic origin were most seriously considered. Dietary restrictions failed to prevent seizures. The use of ergotamine tartrate was ineffective. The clinical history also suggested a form of focal symptomatic epilepsy, a diagnosis which seemed to be substantiated by electroencephalographic studies which revealed abnormal waves over both frontal lobes. Anticonvulsant therapy brought about a cessation of the seizures and correction of the electroencephalographic tracings. Discontinuation of phenytoin sodium treatment resulted in a return of the seizures.

H.

Anaphylaxis

The Immunological Specificity of Sulfonamide Protein Conjugates as Demonstrated by Anaphylaxis in Guinea-Pigs and the Shwartzman Phenomenon in Rabbits. Gerber, I. E., and Gross, M.: J. Immunol. **48**: 103, 1944.

Various sulfonamide compounds were conjugated by diazotization with different native proteins, such as normal horse serum albumin, human serum albumin, whole human serum, and gelatin. These sulfonamide-protein conjugates were employed to sensitize rabbits and

guinea pigs. Guinea pigs received a single intraperitoneal injection of 2 c.c. of the antigen and were tested intravenously after thirty days. Rabbits received three intravenous injections of 2 c.c. of antigen at six-day intervals and were tested by the subcutaneous injection of 0.5 c.c. of proteic conjugate which, in the presence of sensitivity, produced an Arthus-type reaction.

Sensitized guinea pigs were fatally shocked following the intravenous injection of the homologous sulfonamide conjugate, the homologous native protein, and a heterologous protein conjugated with a related sulfonamide (excepting sulfathiazole). Guinea pigs, sensitized with native proteins, could only be shocked by the injection of those sulfonamides which had been conjugated to the homologous protein. The intravenous injection of large doses of plain sulfonamides failed to produce any reaction in animals sensitized with sulfonamide-proteic conjugates. Control animals, sensitized with para-aminobenzoic acid or aminonitrophen conjugated with ovalbumin, failed to react to intravenous injection of sulfonamide conjugates. Gelatin conjugates failed to sensitize or shock guinea pigs. The results obtained in rabbits were essentially the same.

The Shwartzman phenomenon was also employed in experiments on rabbits as an index of the antigen-antibody reaction. Rabbits previously sensitized with sulfonamide azoproteins were injected intracutaneously with meningococcus filtrate. After twenty-four hours, an intravenous injection of the test substance was given. A positive reaction, when present, consisted of a hemorrhagic cutaneous reaction at the prepared site, developing within one or two hours.

A Shwartzman phenomenon was elicited at the prepared cutaneous sites in rabbits sensitized with sulfonamide conjugates when a homologous conjugate, homologous native protein, or a heterologous protein conjugated with a related sulfonamide was injected intravenously. A Shwartzman or Arthus phenomenon was never obtained when the hapten alone was injected. It was concluded from these experiments that the specificity of sulfonamide hypersensitivity in animals is similar to that observed in the clinical reactions of sulfonamide hypersensitivity which occur in human beings. A.

Influence of Certain Amino Acids on Histamine Reactions and Anaphylactic Reactions in Intestinal Strips of Guinea-Pigs and in Intact Guinea-Pigs. Landau, S. W., and Gay, L. N.: Bull. Johns Hopkins Hosp. **74**: 55, 1944.

The addition of arginine and of histidine to the Dale bath prevents the intestinal strip of the guinea pig from responding to stimulation with histamine or specific anaphylactogen. The action of acetylcholine on the intestinal strip is not suppressed by either arginine or histidine. Histamine death can be prevented in the guinea pig by the previous injection of arginine monohydrochloride, but symptoms of histamine intoxication occur in these animals. Doses of arginine which prevent

histamine death fail to protect against fatal anaphylactic shock. Larger doses of arginine are toxic. Arginine, in 2 per cent solutions; had no effect on the wheals produced by intracutaneous tests with histamine or with offending pollens when it was mixed with the testing solution or when it was injected into the developing wheal.

H.

Active Hypersensitivity From Inhalation of Finely Atomized Fluid Antigens. Hopps, H. C., and Moulton, S.: Proc. Soc. Exper. Biol. & Med. **54**: 244, 1943.

The effects of the inhalation, of finely atomized fluid antigens, such as animal sera and egg albumen, were investigated in guinea pigs. One group of animals was exposed, in a closed chamber for twenty minutes on five successive days, to an atmosphere into which the undiluted antigen was continuously atomized. Precipitin titers were determined fourteen days after the first exposure. A second group of animals was injected with the same antigen, and a third untreated group was employed as controls. Four weeks later, all three groups were exposed to the finely atomized antigens. All animals previously injected or exposed by inhalation showed varying degrees of anaphylactic shock. The reactions were of the same type and severity among all the sensitized animals, regardless of route of sensitization. Of the fifty-six guinea pigs sensitized, only three died in the chamber as a result of exposure to the atomized antigen. Most of the animals recovered from shock within a few hours. In the control group, some slight reactions were noted. Of fourteen animals that had been exposed by inhalation to various antigens, twelve died in anaphylactic shock when tested intravenously with the antigen four weeks later. Animals exposed to atomized antigens showed acute inflammatory changes in the lungs, nasal mucosa, and trachea which were more marked in the sensitized animals than in the controls. In view of these findings, the authors questioned the advisability of prophylactic immunization of human beings to influenza by the repeated inhalation of small doses of anti-influenza serum.

A.

The Relation of the Dose of Antigen to the Degree of Anaphylactic Shock in Dogs. Dragstedt, C. A.: J. Immunol. **47**: 505, 1943.

Two hundred and forty dogs were sensitized to horse serum, each animal receiving equal amounts of antigen by intravenous and subcutaneous injections on the same day. The animals were anesthetized sixteen days later and were tested intravenously with varying amounts of horse serum administered at a uniform rate. The degree of anaphylaxis was measured by the amount and duration of the fall in blood pressure. The dogs varied in their susceptibility to anaphylactic shock. Although the technique of sensitization was the same in all the animals, the severity of the anaphylactic reaction was not proportional to the

size of the shocking dose. It was impossible to foretell the dose which would be fatal to all the animals. It was concluded that dogs vary widely in their susceptibility to anaphylaxis and that the value of any inhibiting agent cannot be accurately determined by injecting what is assumed to be a uniformly fatal dose of antigen into a small number of sensitized animals.

A.

The Reaction of the Smooth Muscle of the Denervated Iris in Anaphylaxis. A Comparative Study in the Guinea-Pig, Rabbit, Dog, Cat and Monkey. Bender, M. B.: J. Immunol. **47**: 483, 1943.

The iris in mammals is composed of two sets of nonstriated muscle which are antagonistic to each other in action and autonomic innervation. The sphincter pupillae muscle is innervated by the parasympathetic system and therefore would be expected to contract during anaphylaxis.

Animals sensitized with horse serum or crystalline ovalbumin were shocked by intravenous injection of the antigen. In these animals the iris of one eye had been denervated by sectioning all the nerves behind the globe. The anesthetic was ruled out as the cause of the reactions which were observed. In guinea pigs, the denervated iris remained dilated and fixed after operation, but contracted within two minutes after the injection of a shock dose of antigen and remained so until just before death. The pupil of the normal eye tended to constrict, but this effect was not constant. Asphyxia by ligation of the trachea caused a contraction of the normal but not the denervated sphincter pupillae. In sensitized rabbits and dogs, anaphylactic shock caused constriction of the dilated pupil of the denervated iris within one minute following the injection of a shock dose. Atropinization failed to abolish the pupillary constriction which lasted for twenty to thirty minutes. In nonsensitized dogs, but not in rabbits. the injection of peptone produced anaphylactoid symptoms and marked constriction of the denervated iris. In sensitized cats, the injection of the shock dose of antigen produced mild anaphylactic symptoms and marked constriction of the pupil in the denervated iris which lasted twenty to forty-five minutes and was not abolished by atropine. Peptone caused marked constriction of the pupil in the denervated iris. In monkeys, sensitization was difficult. Anaphylactic symptoms following the injection of a shock dose were mild and associated with slight constriction of the denervated pupil.

These experiments indicate that the constriction of the pupil of the denervated iris in anaphylactic shock is independent of the nervous system.

The liberation of histamine does not account for the reaction, since the intravenous injection of histamine fails to constrict the pupil. The liberation of acetylcholine likewise fails to explain the phenomenon since atropine fails to block the constriction in anaphylaxis.

A.